

Dear Mr. Ellsberg: It is very nice indeed to know that you developed similar thoughts to these, because this makes me feel that I may not have been on the wrong track either. I'll do my best to make this paper fit into the symposium (in size as well as content). With sincere regards W. F.

AN OPERATIONAL APPROACH TO UNCERTAINTY,
UTILITY, AND SUBJECTIVE PROBABILITY

William Fellner

The theory of utility, and also that of subjective probability, can be greatly simplified by disregarding the phenomenon which Frank Ramsay called the "eagerness or reluctance to bet," or the "love or hatred of excitement," and to which von Neumann and Morgenstern refer as the "specific utility of gambling." The simplification is, however, achieved at a high cost because the phenomenon designated by these innocuously sounding terms is nothing other than the reaction of individuals to uncertainty. What we are talking about when using any of these expressions is that element in a risky situation which the probability judgments of the decision-maker do not resolve. Uncertainty in this sense is one of the central phenomena of the economic process.

The concept of subjective probability has merely an indirect bearing on my line of reasoning. So far as concerns this concept, I believe that allowances of a rather simple kind will be adequate to take account of the element of uncertainty. The purification of operational concepts of utility presents a more difficult problem. But I hope we shall succeed in getting a clearer picture of what lies behind the "eagerness or reluctance to bet" or the "utility or disutility of gambling," that is, of what lies behind reactions to uncertainty; and I believe that a clearer understanding of this concept will lead us here to an operational concept of utility on the one hand, and of uncertainty on the other, which for all practical purposes are free from mutual contamination and thus enable the investigator to use distinctive methods for the exploration of two distinct phenomena.